

Remarks/Arguments

35 U.S.C. §112, ¶II

The Examiner has objected to claims 1-12, under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential circuitual cooperative relationships of elements.

Currently amended claim 1 now comprises all essential elements of the circuit arrangement. Furthermore, the structural relationships between the rectifier, the first power supply unit, the mains terminal, the mains switch, the controller, the switching element, and the load have been clearly defined for operation in accordance with the present invention. The switching element is coupled in parallel with the first switching contact of the mains switch for providing a current path bridging said first switching contact, as disclosed by the embodiments of Figures 1 and 2 and the description on page 5, lines 16-19.

In view of the above remarks and amendments, it is respectfully asserted that the basis for the objection has been removed and that the objection should be withdrawn.

35 U.S.C. §102

Claims 1-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Kohda (U.S. Patent No. 6,420,906).

Claims 1-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Takagi (U.S. Patent No. 6,650,552).

Claims 1-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Wesling (U.S. Patent No. 4,381,479).

Claims 1-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Prines (U.S. Patent No. 4,257,092).

It is respectfully asserted that none of Kohda, Takagi, Wesling or Prines, alone or in combination, discloses:

“a mains switch having a first switching contact, arranged between the mains terminal and the rectifier, or arranged for turning off a supply or control voltage of a driver stage of the first power supply unit,”

as described in currently amended claim 1.

Among the problems addressed by the present invention is the need for cooling of a lamp unit in a device with a high-power lamp in order to maintain a sufficient service life, and the inability to provide such cooling if the device is powered down at the mains switch. (Specification, pages 1-2)

To address this problem, the present application discloses a circuit arrangement which ensures a delayed switch-off of a load, such as a fan, for a certain time, when the circuit arrangement is turned off by means of a mains switch. The circuit arrangement as described in currently amended claim 1 comprises a rectifier, a mains terminal, a controller for control of the switching element, and a power supply unit supplied with DC voltage by the rectifier. The mains switch has a first switching contact, which is arranged between the mains terminal and the rectifier, which is arranged for turning off a supply or control voltage of a driver stage of the first power supply unit. The switching element is arranged in parallel with a first switching contact of the mains switch for providing a current path bridging the first switching contact. The load is switched off and the switching element is opened in a delayed manner, when the circuit arrangement is switched off by means of the mains switch. The load is switched off simultaneously when opening the switching element via the control voltage by means of the controller.

In Kohda, an “OR circuit allowing one stable output voltage from a plurality of input voltages is disclosed. A first FET is connected between a corresponding input terminal and an output terminal in such a manner that an inherent diode of the FET is connected in a forward direction. A second FET is connected between a corresponding input terminal and the output terminal in the same manner as the first FET. Each of the

input voltages is compared with the output voltage. The conduction/non-conduction states of each of the first and second FETs are independently controlled depending on the comparison result.” (Kohda Abstract) Kohda describes a circuit arrangement comprising first and second power supply units and first and second switching elements with a control terminal, to which a comparator is coupled for switching the respective switching elements. The conduction/non-conduction state of each switching element is independently controlled to provide a reliable and stable output voltage from a plurality of input voltages.

Kohda fails to disclose a mains switch having a first switching contact arranged between the mains terminal and a rectifier, or arranged for turning off a supply voltage or control voltage of a driver stage of a power supply unit. Also, no switching element is disclosed being arranged in parallel with the first switching contact of the mains switch for bridging the first switching contact. Furthermore, Kohda fails to disclose a load coupled to a control terminal of the switching element, or a controller coupled to the control terminal for control of the switching element, such that the load could be switched off and the switching element be opened simultaneously, in response to the controller. Thus, Kohda fails to disclose: “a mains switch having a first switching contact, arranged between the mains terminal and the rectifier, or arranged for turning off a supply or control voltage of a driver stage of the first power supply unit,” as described in currently amended claim 1.

Takagi teaches a switching power supply unit wherein “a timing generating circuit (121) which receives a first control signal formed by a rectifier-transistor driving circuit (104), forms a second control signal based on the first control signal, and supplies the second control signal to a control electrode of the rectifier transistor (113). The first control signal is synchronized with the switching operation of a half-bridge circuit (102), and the second control signal exceeds a threshold voltage of a rectifier transistor (113) at a timing substantially equal to the timing that one edge of the first control signal is generated and falls below the threshold voltage of the rectifier transistor (113) at a timing earlier by predetermined time than the timing that the other edge of the first control signal is generated.” (Takagi Abstract)

Wesling teaches a “programmed microprocessor controller chopper apparatus for an electric motor is responsive to an operating condition of the chopper such as at least one of the commutation capacitor charge voltage and the level of motor current for determining the desired commutation circuit operation for that chopper apparatus in relation to the provision of an OFF control pulse in relation to an ON control pulse every cycle of the microprocessor program operation.” (Wesling Abstract)

Prines teaches a “direct current motor power controlling chopper apparatus is disclosed which determines the operational speed of one or more traction motors propelling a passenger vehicle along a track. The speed of the motor is established by changing the ON and OFF conduction ratio or duty cycle relationship of a thyristor switch device to determine the field current and the armature voltage of that motor. The present apparatus can provide a greater controlled range of motor speeds including a lower minimum OFF operation and a full ON capacity. In addition, the present apparatus provides greater reliability due to less thermal stress on the thyristor switch devices and fewer circuit elements required to provide an improved motor current control operation.” (Prines Abstract)

None of Takagi, Wesling, or Prines discloses a mains switch having a first switching contact arranged between a mains terminal and a rectifier, or arranged for turning off a supply voltage or control voltage of a driver stage of a power supply unit. Also, none of the references discloses a switching element arranged in parallel with the first switching contact of the mains switch for bridging the first switching contact, as described by currently amended claim 1. Furthermore, none of the cited references provides any teaching in the direction of coupling a load with a control terminal of the switching element, and coupling a controller to the control terminal for control of the switching element, such that the load is switched off and the switching element is opened simultaneously in response to the controller in a delayed manner with regard to the switching off of the circuit arrangement by means of the mains switch. Thus, Takagi, Wesling, and Prines, like Kohda, fail to disclose: “a mains switch having a first switching contact, arranged between the mains terminal and the rectifier, or arranged for turning off a

supply or control voltage of a driver stage of the first power supply unit,” as described in currently amended claim 1.

In view of the above remarks, it is respectfully submitted that there is no 35 USC 112 enabling disclosure provided by Kohda, Takagi, Wesling or Prines, alone or in combination, which makes the present invention as claimed in currently amended claim 1 unpatentable. Since dependent claims 2-12, are dependent from allowable independent claim 1, it is submitted that they too are allowable for at least the same reasons that independent claim 1 is allowable. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's representative at (609) 734-6804, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,

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